

Rolling Knolls Landfill Superfund SITE
FIELD CHANGE REQUEST (FCR) FORM

Contract No.:REQUEST NO: 08 DATE: 06/09/2015 (revised 06/18/2015)
(revised 06/24/2014)FCR TITLE: Replacement of MW-13 with Pore-water Samplers**DESCRIPTION:**

The Data Gaps Sampling and Analysis Plan (Data Gaps SAP) proposed installing seven permanent monitoring wells (MW-11 through MW-17). The Data Gaps SAP indicated the final locations of the permanent monitoring wells will be determined based on the results of the soil sampling and the temporary monitoring well samples collected as part of the data gap sampling. These data, and a proposal for the locations of the permanent monitoring wells, were transmitted to USEPA for review and approval on February 17, 2015. Additional supporting information was transmitted to USEPA on February 27, 2015. The USEPA responded on March 5, 2015 and requested adjustments to the locations of MW-12 and MW-15. The USEPA also requested the installation of three additional monitoring wells (MW-18 through MW-20). One of the proposed monitoring wells (MW-13) was to be located in an area later found to be inundated with water and is not a suitable location for a permanent monitoring well. Additional locations have been investigated; however, no appropriate relocation for this well has been identified. Consequently, the USEPA requested that pore-water samples be collected in place of this monitoring well.

REASON FOR DEVIATION:

Prior to installing the monitoring wells, ARCADIS personnel and a USEPA representative inspected each proposed monitoring well location. The proposed location for MW-13 was in approximately 6 to 24 inches of standing water. The location could not be moved to an area with no standing water, while still meeting the objective of delineating soil sample results from SS-157 and SS-158. USEPA was informed of these field conditions on May 28, 2015. As a result, on June 4, 2015, the USEPA requested pore-water samplers be placed at the MW-13 location, shown in green on Figure 1.

RECOMMENDED MODIFICATIONS:

Monitoring well MW-13 will be replaced with porewater samplers. Regenerated cellulose membrane samplers will be used to collect volatile organic compounds (VOCs), metals (unfiltered only) and cyanide. Additional pore-water will be collected using PushPoint techniques and analyzed for semi-volatile organic compounds (SVOCs), pesticides, and polychlorinated biphenyls (PCBs) (as Aroclors). Certain SVOCs will be analyzed by SIM to obtain a lower detection limit. Sampling procedures will follow those approved in the Quality Assurance Project Plan (approved by USEPA on December 18, 2014) using standard operating procedures (SOPs) 20 and 21. If the pumping rate in the PushPoint samplers is low, it may be difficult to retrieve all the required volume for sample analysis within a sampling period of one 12-hour field day. In that case, the following order of priority for analyses will be used, as listed in Table 1 of the Data Gaps SAP for previously proposed pore-water samples (approved by USEPA on November 18, 2014) unless otherwise noted:

1. ARCADIS PCB sample
2. USEPA PCB split sample
3. ARCADIS pesticides sample
4. USEPA pesticides split sample

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5. ARCADIS SVOCs sample
6. USEPA SVOCs split sample
7. ARCADIS duplicate sample for PCBs
8. USEPA MS/MSD for PCBs
9. ARCADIS duplicate sample for pesticides
10. USEPA MS/MSD for pesticides
11. ARCADIS duplicate sample for SVOCs
12. USEPA MS/MSD for SVOCs

ARCADIS will prepare and provide the sampling materials for the split pore-water samples for both the cellulose membrane samplers and the PushPoint samples. ~~USEPA should provide ARCADIS with the required sample volumes for each analysis as soon as possible, as it will take approximately three weeks from receipt of that information to obtain, prepare, and deploy the membrane samplers.~~

IMPACT ON PROJECT OBJECTIVES:

The pore-water samples will help evaluate the concentrations of PCBs near sample locations SS-157 and SS-158. Groundwater conditions at, and in the areas surrounding, the landfill will be monitored by a network of 26 monitoring wells in total.

Dated Signatures:
06/24/2015



06/09/2015 (revised 06/18/2015;

(Field Team Leader)



06/09/2015 (revised 06/18/2015;

06/24/2015

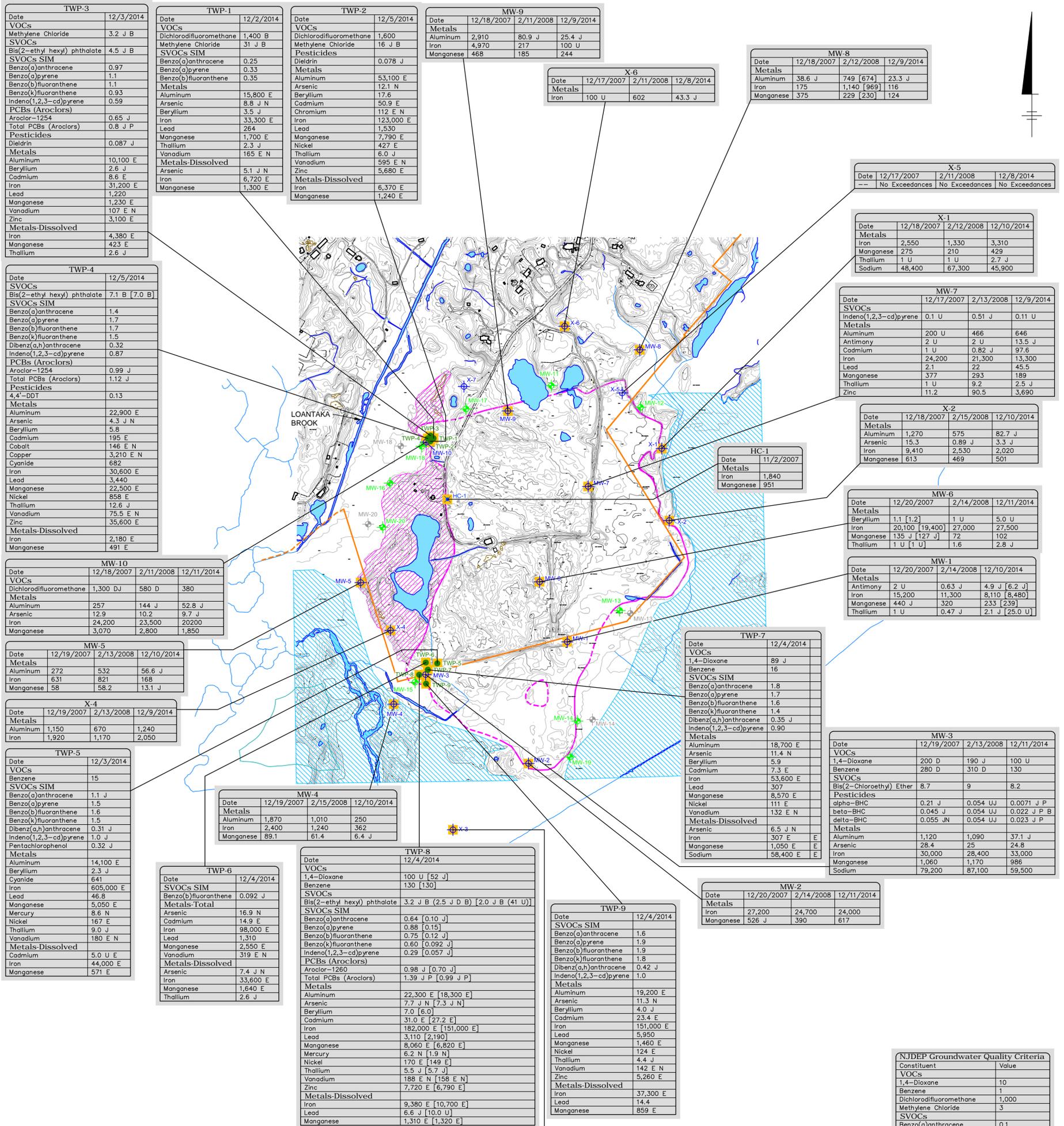
(Project Manager)

Distribution:

T. Mitchell, EPA Remedial Project Manager
Quality Assurance Coordinator

RI Task Leader
Project File

XREFS: IMAGES: PROJECTNAME: ---
 33203X01
 B003203X15
 B003203XPD



LEGEND:

- OPEN WATER
- EDGE OF LANDFILLED WASTES OBSERVED DURING TEST PIT ACTIVITIES (DASHED WHERE APPROXIMATE)
- GREAT SWAMP NATIONAL WILDLIFE REFUGE PROPERTY BOUNDARY (DASHED WHERE APPROXIMATE)
- WASTE AND DEBRIS OBSERVED ON GROUND SURFACE BUT NOT OBSERVED OR ANTICIPATED TO BE BELOW GROUND SURFACE
- AREAS WHERE SURFACE WATER FLOW DOES NOT EXHIBIT TYPICAL BED AND BANK MORPHOLOGY
- + PROPOSED MONITORING WELL (PREVIOUS LOCATIONS SHOWN IN GREY)
- + EXISTING MONITORING WELL LOCATION
- + DATA GAP TEMPORARY WELL LOCATION
- + EXISTING WELL LOCATION
- + WELL LOCATION WITH DETECTED CONCENTRATIONS GREATER THAN NJDEP GROUNDWATER QUALITY CRITERIA

DATA NOTES:
 UNITS = MICROGRAMS PER LITER
 [] = DUPLICATE SAMPLE
 () = RESULTS OF SECONDARY ANALYSIS
 SVOCs = SEMI-VOLATILE ORGANIC COMPOUNDS
 VOCs = VOLATILE ORGANIC COMPOUNDS
 B = THE COMPOUND HAS BEEN FOUND IN THE SAMPLE AS WELL AS ITS ASSOCIATED BLANK.
 D = CONCENTRATIONS IDENTIFIED FROM ANALYSIS OF THE SAMPLE AT A SECONDARY DILUTION.
 E = FOR INORGANICS THE REPORTED VALUE IS ESTIMATED DUE TO INTERFERENCE RESULTING FROM SERIAL DILUTIONS.
 J = FOR ORGANICS THE COMPOUND WAS POSITIVELY IDENTIFIED; HOWEVER, THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
 U = FOR INORGANICS THE SAMPLE RESULT IS GREATER THAN THE MDL BUT BELOW THE CRDL.
 N = FOR ORGANICS THE ANALYSIS INDICATES THE PRESENCE OF A COMPOUND FOR WHICH THERE IS PRESUMPTIVE EVIDENCE TO MAKE A TENTATIVE IDENTIFICATION. THE ASSOCIATED NUMERICAL VALUE IS AN ESTIMATED CONCENTRATION ONLY.
 P = FOR INORGANICS THE SPIKED SAMPLE RECOVERY IS NOT WITHIN CONTROL LIMITS.
 Q = DUAL COLUMN ANALYSIS RESULTED IN GREATER THAN 25% DIFFERENCE FOR DETECTED CONCENTRATIONS BETWEEN THE TWO COLUMNS.
 U = THE COMPOUND WAS ANALYZED FOR BUT NOT DETECTED. THE ASSOCIATED VALUE IS THE COMPOUND QUANTITATION LIMIT.

TWP-3
 Date: 12/3/2014
 VOCs: Methylene Chloride 3.2 J B
 SVOCs: Bis(2-ethyl hexyl) phthalate 4.5 J B
 Metals: Aluminum 10,100 E, Beryllium 2.9 J, Cadmium 8.6 E, Iron 31,200 E, Lead 1,220, Manganese 1,230 E, Vanadium 107 E N, Zinc 3,100 E
 Metals-Dissolved: Iron 4,380 E, Manganese 423 E, Thallium 2.6 J

TWP-4
 Date: 12/5/2014
 VOCs: Bis(2-ethyl hexyl) phthalate 7.1 B [7.0 B]
 SVOCs SIM: Benzo(a)anthracene 1.4, Benzo(a)pyrene 1.7, Benzo(b)fluoranthene 1.7, Benzo(k)fluoranthene 1.5, Dibenz(a,h)anthracene 0.32, Indeno(1,2,3-cd)pyrene 0.89
 PCBs (Aroclors): Aroclor-1254 0.99 J, Total PCBs (Aroclors) 1.12 J
 Pesticides: 4,4'-DDT 0.13
 Metals: Aluminum 22,900 E, Arsenic 4.3 J N, Beryllium 5.8, Cadmium 195 E, Cobalt 146 E N, Copper 3,210 E N, Cyanide 682, Iron 30,600 E, Lead 3,440, Manganese 22,500 E, Nickel 858 E, Thallium 12.6 J, Vanadium 75.5 E N, Zinc 35,600 E
 Metals-Dissolved: Iron 2,180 E, Manganese 491 E

MW-10
 Date: 12/18/2007, 2/11/2008, 12/11/2014
 VOCs: Dichlorodifluoromethane 1,300 DJ, 580 D, 380
 Metals: Aluminum 257, Arsenic 12.9, Iron 24,200, Manganese 3,070

MW-5
 Date: 12/19/2007, 2/13/2008, 12/10/2014
 Metals: Aluminum 272, Iron 631, Manganese 58

X-4
 Date: 12/19/2007, 2/13/2008, 12/9/2014
 Metals: Aluminum 1,150, Iron 1,920

TWP-5
 Date: 12/3/2014
 VOCs: Benzene 15
 SVOCs SIM: Benzo(a)anthracene 1.1 J, Benzo(a)pyrene 1.5, Benzo(b)fluoranthene 1.6, Benzo(k)fluoranthene 1.5, Dibenz(a,h)anthracene 0.31 J, Indeno(1,2,3-cd)pyrene 1.0 J, Pentachlorophenol 0.32 J
 Metals: Aluminum 14,100 E, Beryllium 2.3 J, Iron 641, Manganese 605,000 E, Lead 46.8, Mercury 8.6 N, Nickel 167 E, Thallium 9.0 J, Vanadium 180 E N
 Metals-Dissolved: Cadmium 5.0 U E, Iron 44,000 E, Manganese 571 E

MW-4
 Date: 12/19/2007, 2/15/2008, 12/10/2014
 Metals: Aluminum 1,870, Iron 2,400, Manganese 89.1

TWP-6
 Date: 12/4/2014
 VOCs: 1,4-Dioxane 100 U [52 J], Benzene 130 [130]
 SVOCs: Bis(2-ethyl hexyl) phthalate 3.2 J B (2.5 J D B) [2.0 J B (41 U)]
 SVOCs SIM: Benzo(a)anthracene 0.64 [0.10 J], Benzo(a)pyrene 0.88 [0.15], Benzo(b)fluoranthene 0.75 [0.12 J], Benzo(k)fluoranthene 0.60 [0.092 J], Indeno(1,2,3-cd)pyrene 0.29 [0.057 J]
 PCBs (Aroclors): Aroclor-1260 0.98 J [0.70 J], Total PCBs (Aroclors) 1.39 J P [0.99 J P]
 Metals: Aluminum 22,300 E [18,300 E], Arsenic 7.7 J N [7.3 J N], Beryllium 7.0 [6.0], Cadmium 31.0 E [27.2 E], Iron 182,000 E [151,000 E], Lead 3,110 [2,190], Manganese 8,060 E [6,820 E], Mercury 6.2 N [1.9 N], Nickel 170 E [149 E], Thallium 5.5 J [5.7 J], Vanadium 188 E N [158 E N], Zinc 7,720 E [6,790 E]
 Metals-Dissolved: Iron 9,380 E [10,700 E], Lead 6.6 J [10.0 U], Manganese 1,310 E [1,320 E]

NJDEP Groundwater Quality Criteria

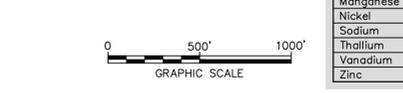
Constituent	Value
VOCs	
1,4-Dioxane	10
Benzene	1
Dichlorodifluoromethane	1,000
Methylene Chloride	3
SVOCs	
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Benzo(b)fluoranthene	0.05
Benzo(k)fluoranthene	0.5
Bis(2-Chloroethyl) Ether	7
Bis(2-ethyl hexyl) phthalate	3
Dibenz(a,h)anthracene	0.3
Indeno(1,2,3-cd)pyrene	0.2
Pentachlorophenol	0.3
PCBs (Aroclors)	
Aroclor-1254	0.5
Total PCBs (Aroclors)	0.5
Pesticides	
4,4'-DDT	0.1
alpha-BHC	0.02
beta-BHC	0.04
delta-BHC	0.03
Dieldrin	0.03
Metals	
Aluminum	200
Antimony	6
Arsenic	3
Beryllium	1
Cadmium	4
Chromium	70
Cobalt	100
Copper	1,300
Cyanide	100
Iron	300
Lead	5
Manganese	50
Nickel	100
Sodium	50,000
Thallium	2
Vanadium	60
Zinc	2,000

NOTES:

- ANALYTICAL RESULTS GIVEN IN MICROGRAMS PER LITER FOR GROUNDWATER SAMPLES WITH DETECTED CONCENTRATIONS GREATER THAN NEW JERSEY GROUNDWATER QUALITY CRITERIA (DATED JULY 2010).
- THE EDGE OF LANDFILLED WASTES OBSERVED DURING TEST PIT ACTIVITIES IS DRAWN BASED ON OBSERVATIONS OF MATERIALS EXCAVATED DURING TEST PIT ACTIVITIES CONDUCTED FROM JULY 26, 2007 TO SEPTEMBER 6, 2007 AND MARCH 26, 2008. THE EDGE OF THE LANDFILL WAS REFINED BASED ON OBSERVATIONS PRESENTED IN THE FIELD CHANGE REQUEST (FCR-02) APPROVED BY USEPA ON DECEMBER 29, 2014.
- THE EXTENT OF AREAS WHERE SURFACE WATER FLOW DOES NOT EXHIBIT TYPICAL BED AND BANK MORPHOLOGY IS BASED ON FIELD OBSERVATIONS MADE THROUGHOUT THE PERIOD OF INVESTIGATION ACTIVITIES. THE EXTENT OF THE AREA SHOWN IS APPROXIMATE.
- MONITORING WELL X-7 WAS DAMAGED AND COULD NOT BE SAMPLED.
- DATA GAP ANALYTICAL RESULTS HAVE NOT BEEN VALIDATED.

SOURCES:

- BASEMAP FROM JAMES M. STEWART INC., LAND SURVEYORS, PHILADELPHIA, PA., (ELECTRONIC FILE: 292406.DWG DATED: 6/30/06)



ROLLING KNOLLS LANDFILL SUPERFUND SITE
 CHATHAM, NEW JERSEY
DATA GAP INTERIM REPORT

**GROUNDWATER ANALYTICAL RESULTS
 GREATER THAN NEW JERSEY
 GROUNDWATER QUALITY CRITERIA**

ARCADIS

FIGURE
1